

CLAIMS

1. A display device comprising:

at least one coherent light source having a visible-range wavelength;

a laser projection part having a video conversion optical system for converting light from the coherent light source into video;

a screen onto which the light emitted from the laser projection part is projected; and

a support member for supporting the laser projection part, which is attached to the screen;

wherein a region to be directly irradiated with the light emitted from the laser projection part is limited to a region on the screen.

2. A display device as defined in Claim 1 wherein

the laser projection part has a movable range and a movable direction which are limited by the support member so that the light from the laser projection part is incident on only the screen.

3. A display device as defined in Claim 1 wherein

the laser projection part varies the intensity of laser irradiation according to a difference in intensities of laser

lights between a region on the screen which is irradiated with the laser light and a region which is not irradiated with the laser light.

4. A display device as defined in Claim 1 wherein

said video conversion optical system includes a two-dimensional switch array for spatially modulating the light emitted from the coherent light source, and a lens optical device for expanding and projecting an image of the two-dimensional switch array.

5. A display device as defined in Claim 1 wherein

said video conversion optical system has a beam scanner for scanning the light emitted from the coherent light source so that a two-dimensional image is formed on the screen.

6. A display device as defined in Claim 1 wherein

said coherent light source includes at least three light sources, and the respective light sources have wavelengths of 430~455nm, 630~650nm, and 510~550nm, respectively.

7. A display device as defined in Claim 1 wherein

said screen is of a foldable structure that can extend its surface area up to two times or more.

8. A display device as defined in Claim 7 wherein
said arm is of a structure that can extend its length, and
a light projection area on the screen onto which the light
from the optical system is projected varies in association with
the length of the arm and the area of the screen.
9. A display device as defined in Claim 1 wherein
said screen is constituted by a diffusion plate, and a
diffraction angle of the light reflected at the screen or a
diffraction angle of the light transmitted through the screen is
restricted so that the reflected light or the transmitted light
has directionality.
10. A display device as defined in Claim 1 further including
a photodetector for detecting a portion of the reflected
light from the screen,
wherein projection of light from the laser projection part is
controlled on the basis of the state of the reflected light that
is detected by the photodetector.
11. A display device as defined in Claim 1 wherein
said coherent light source is mounted on the screen, and the
light from the coherent light source is supplied to the video
conversion optical system through a light transmitting medium.

12. A display device as defined in Claim 11 wherein
said light transmitting medium is an optical fiber.